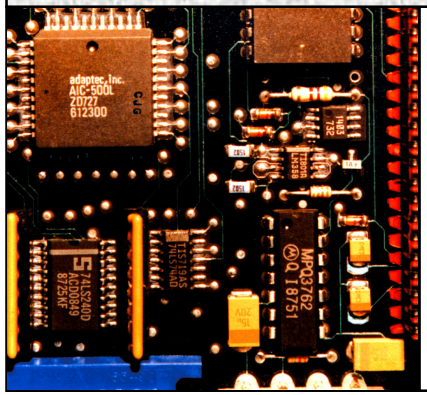
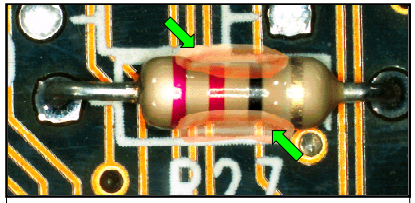
CONFORMAL COATING and STAKING (BONDING)
GENERAL REQUIREMENTS



GENERAL REQUIREMENTS

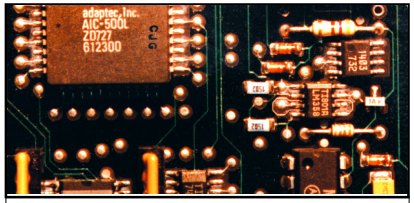
Reliable staking and conformal coating results from proper design, control of equipment, materials, work environments, and careful workmanship by trained and certified personnel.

The staking and conformal coating materials shall have dielectric properties that will meet the minimum circuit requirements in all anticipated environments. The materials shall be compatible, noncorrosive, and curable under conditions that will not change or adversely affect the performance or reliability of the parts on the PWA.



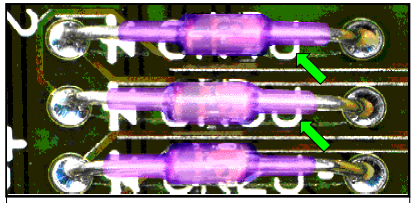
PREFERRED
ADHESIVE BONDING / STAKING

Adhesive bonding / staking material has been applied to the parts and locations specified by the approved engineering specification. Material quantity is sufficient to provide required support, but does not negate stress relief or mechanically compromise hardware reliability.



PREFERRED
CONFORMAL COATING

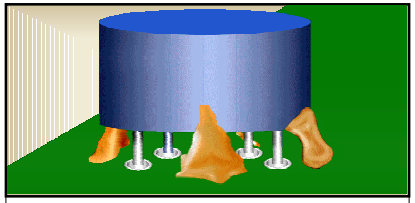
Coating covers all areas as specified on the engineering documentation. Coating exhibits uniform color, thickness, proper adhesion, is smooth, and tack free. No bubbles, entrapped contaminants or particles, excessive fillets, runs, drips, etc.



PREFERRED
GLASS-BODIED PARTS

Glass encased parts (i.e., diodes, etc.) shall be covered with transparent, resilient sleeving or other approved material, prior to staking or conformal coating with a rigid material.

NASA-STD-8739.1 [9.2.3.c], [11.6.3.e]
NASA-STD-8739.3 [8.1.4]

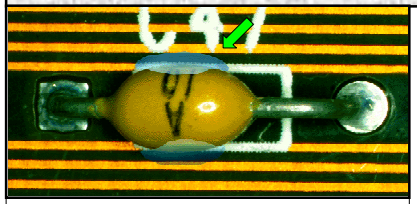


PREFERRED
3.5 GM PER LEAD / 7 GM TOTAL RULE

Components weighing 7 grams (0.25 oz.) total, or 3.5 grams (0.12 oz.) per lead, shall be bonded to the mounting surface, in at least four evenly spaced places around component, when no other mechanical support is used.

Best Workmanship Practices

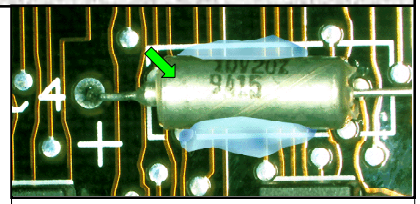
CONFORMAL COATING and STAKING (BONDING)
GENERAL REQUIREMENTS (cont.)



PREFERRED
TANTALUM CAPACITORS

All axial-leaded solid-slug tantalum capacitors shall be staked.

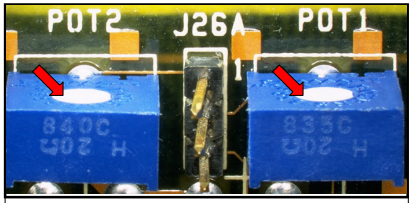
NASA-STD-8739.1 [9.2.4], [11.6.3.d]



PREFERRED
UNINSULATED METALLIC-CASED COMPONENT

Metallic-cased components mounted over printed conductors or which are in close proximity to uncommon conductive surfaces shall be separated by insulation of suitable thickness.

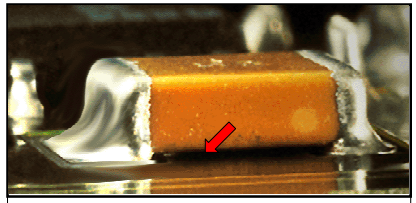
NASA-STD-8739.3 [8.1.2.b]



UNACCEPTABLE
ADJUSTABLE COMPONENTS

The adjustable portion of adjustable components (i.e., potentiometers, variable capacitors, etc.), as well as electrical and mating surfaces shall be left uncoated.

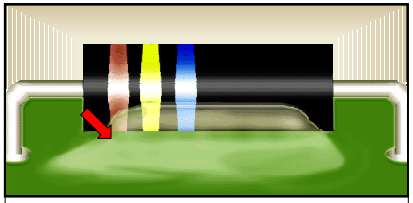
Best Workmanship Practice



UNACCEPTABLE
BRIDGING / UNDERFILL

Conformal coating and/or staking materials shall not be allowed to bridge between the bottom of ceramic-bodied DIPs, flatpacks, or surface mounted parts and the PWB.

NASA-STD-8739.1 [9.2.1], [11.6.3.b]



UNACCEPTABLE
CONFORMAL COAT USED AS STAKING

Conformal coating shall not be used as a staking material. Components should be properly staked prior to being conformally coated.

Best Workmanship Practice